

REMARKS/ARGUMENTS

Favorable reconsideration of this Application, as presently amended and in light of the following discussion, is respectfully requested.

This Amendment is in response to the Office Action mailed on April 22, 2004.

Claims 45-73 are pending and Claims 45-66 stand rejected in this Application. Claims 45-66 are amended and new Claims 67-73 are added by the present Amendment.

Summarizing the outstanding Office Action, Claims 45-55 and 62-66 were rejected under 35 U.S.C. §112, second paragraph. Claims 45, 46, 49, and 62-63 were rejected under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Shoemaker (U.S. Patent No. 3,576,090, hereinafter "Shoemaker"). Claims 47-48, 50-61, and 64-66 were rejected under 35 U.S.C. §103(a) as being unpatentable over Shoemaker. Claims 45 and 49 were rejected under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) over either (1) Goepfert et al. (U.S. Patent No. 2,540,112, hereinafter "Goepfert"), (2) Melton et al. (U.S. Patent No. 2,355,667, hereinafter "Melton"), or (3) Upper (U.S. Patent No. 2,457,012, hereinafter "Upper"). Claims 50, 51, 53, 54, 55, 61, and 66 were rejected under 35 U.S.C. § 103(a) as being obvious over either Goepfert, Melton, or Upper. Claim 45 was rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Robie et al. (U.S. Patent No. 2,393,267, hereinafter "Robie"). Claims 50 and 66 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Robie. Claim 45 was rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over either Field (U.S. Patent No. 3,653,858, hereinafter "Field"), Osenberg (U.S. Patent No. 3,023,551, hereinafter "Osenberg"), or Oide (U.S. Patent No. 4,341,532, hereinafter "Oide"). Claims 50 and 66 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Field, Osenberg, or Oide. Claims 46-48 were rejected under 35 U.S.C. § 103(a) as being unpatentable over either

Field or Osenberg both in view of Padberg et al. (U.S. Patent No. 5,092,082, hereinafter “Padberg”). Claims 46-49 and 56-61 were rejected under 35 U.S.C. § 103(a) as being obvious over Oide. Claims 45, 46 and 49 were rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Hurst (U.S. Patent No. 3,121,981, hereinafter “Hurst”). Claims 50 and 66 were rejected under 35 U.S.C. § 103(a) as being obvious over Hurst. Claims 47-48 and 56-61 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hurst in view of Padberg. Claims 45-65 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over all the claims of copending Application No. 10/169,740 in view of Padberg.

Applicants thank the Examiner for the courtesy of an interview extended to Applicants’ representative on May 26, 2004. During the interview, Amendments to the claims as herein presented were proposed, and arguments as hereinafter developed were presented.

It was argued that none of the above-summarized references teach or suggest a grinding wheel having a central ring made by compressing a blank, as defined in Applicants’ specification,¹ and at least another constituent. In addition, it was also argued that none of the cited references did not teach or disclose the use of a heating step. Specific areas of Applicants’ disclosure² were discussed where support for a process without the application of heat is found. Although an agreement was not reached during the interview, Examiner Michael Marcheschi indicated on the interview summary (form PTOL-413) that “all of the references appear to teach a heating step which is outside of the scope of the proposed amendments. With respect to any thickness limitation, it is the examiner’s position that this limitation is still obvious.”

¹ See, for example, Specification, page 3.

² See, for example, page 6, lines 29-33 and page 7, lines 7-23 of Applicants’ specification.

In view of the recognition that any of the cited prior art does not teach or disclose a process for making grinding wheels without the application of heat, Applicants have submitted herein amended dependent Claim 48 and new dependent Claims 68-70 reciting the subject matter of compression without heating. Applicants respectfully submit that at least Claims 48 and 68-70 patently distinguish over the cited prior art of the outstanding Office Action.

Turning the attention now to the outstanding rejections, Claims 45-55 and 62-66 were rejected under 35 U.S.C. §112, second paragraph. Applicants submit that the amendments to Claims 45-66 enclosed herein have overcome these rejections under 35 U.S.C. §112 and respectfully request their withdrawal. It is believed that all pending claims are definite and no further rejection on that basis is anticipated. If, however, the Examiner disagrees, the Examiner is invited to telephone the undersigned who will be happy to work with the Examiner in a joint effort to derive mutually acceptable language.

Claims 45, 46, 49, and 62-63 were rejected under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Shoemaker. In addition, Claims 47-48, 50-61, and 64-66 were rejected under 35 U.S.C. §103(a) as being unpatentable over Shoemaker.

Applicants respectfully submit that the presently amended Claim 45 is not anticipated by Shoemaker because each and every element as set forth in that claim is not found, either expressly or inherently described, in the cited reference. In an anticipation rejection, MPEP § 2131 requires that the identical invention must be shown in as complete detail as is contained in the claim.

In addition, Applicants respectfully submit that Shoemaker does not support a *prima facie* case of obviousness of the invention recited in the presently amended independent

Claims 45, 51, 56, and 66. This is so because Shoemaker does not teach or suggest all the claim limitations recited therein.

Conventional grinding wheels are produced by placing a grinding powder with a binder between fabric reinforcing and protective paper sheets in a mold in separate steps and compressing the resulting structure normally in a continuous process having different tasks, e.g., placing the different sheets in a mold and subsequently pouring and skimming grinding power in the mold. As explained in Applicants' specification, these conventional processes are usually slow because they are limited by the operating speed of the slowest task, normally the pouring and skimming of the abrasive powders and binders. In addition, industrial carousels and tool assemblies associated therewith, especially tool assemblies with sliding parts, rapidly deteriorate due to accidental spills of grinding powder, thereby requiring immobilization of the carousel and production shutdowns.³

According to a feature of the invention as set forth in the presently amended Claim 45, a process for the production of a grinding wheel is recited, comprising, among other features, forming a blank by compressing abrasive grains and a binder and then separately compressing the blank disposed around a central ring with a layer of a constituent to form the wheel. The layer of constituents may comprise a protective sheet, a reinforcing sheet, or a combination of both.

Indeed, the present inventors discovered that, in a surprising way, the best distribution was obtained when the abrasive grains were directly poured into the mold of manufacture, without first placing a sheet in the mold. Those skilled in the art had always believed, as shown in all of the cited prior art references of the outstanding Office Action, that it was essential to first put other matter in the mold before the abrasive grains to obtain a good distribution of the grains.

³ See, for example, Specification, page 2, lines 2-29.

Applicants respectfully submit that those of ordinary skill in the art will know that the novel and unobvious process recited in Claim 45 will significantly improve or eliminate the above-summarized problems with conventional methods because it is now possible to separate tasks involving the abrasive grains and binders from the other process subtasks. Applicants respectfully submit that independent Claims 45, 51, 56, and 66 more clearly recite such a process, installations, or factories using such a process for making grinding wheels.

As previously explained, the layer 6 disclosed by Shoemaker is a non-usable layer. That is only the layer 4 is useful for performing a grinding function.⁴ As presently amended, the independent claims now more clearly recite that the grinding function is provided by the blanks and not the layer of constituent, which is now recited as a protective sheet, a reinforcing sheet, or a combination of both. Moreover, the term “blank,” as defined on page 3 lines 26-28 of Applicants’ specification, and now more clearly recited, relates to a self-sustaining layer and not to a quantity of loose abrasive grains as indicated in the Office Action.

Accordingly, Applicants respectfully submit that Shoemaker fails to teach or suggest the subject matter of a blank as recited in Claims 45, 51, 56, and 66. Claims 46, 49, and 60-63 depend directly or indirectly from Claim 45. Claims 52-55 depend from Claim 51 and Claims 57-59 depend from Claim 56. Thus, Shoemaker also fails to teach or suggest the subject matter of those claims.

Therefore, Applicants respectfully request that the anticipation of Claims 45, 46, 49, and 62-63 and the obviousness rejection of Claims 47-48, 50-61, and 64-66 based on Shoemaker be withdrawn.

Claims 45 and 49 were rejected under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) over either (1) Goepfert, (2) Melton, or (3) Upper.

⁴ See, for example, Shoemaker, col. 2, lines 70-75.

In addition, Claims 50, 51, 53, 54, 55, 61, and 66 were rejected under 35 U.S.C. § 103(a) as being obvious over either Goepfert, Melton, or Upper.

Applicants respectfully submit that the presently amended Claim 45 is not anticipated by Goepfert, Melton, or Upper because each and every element as set forth in that claim is not found, either expressly or inherently described, in the cited references.

In addition, Applicants respectfully submit that Goepfert, Melton, or Upper does not support a *prima facie* case of obviousness of the invention recited in the presently amended independent Claims 45, 51, and 66. This is so because Goepfert, Melton, or Upper does not teach or suggest all the claim limitations recited therein.

As acknowledged by the outstanding Office Action, Goepfert, Melton, and Upper each discloses "a process for making an abrasive wheel which comprises first forming an abrasive-included felted fibrous sheet." As explained hereinabove and recited in Claims 45, 51, and 66, the claimed blank is formed by compressing abrasive grains and binder, thus the claimed blank does not contain a felted fibrous sheet.

In addition, as disclosed in Goepfert, col. 2, lines 34-51, the process describes is not composed of two distinct stages, i.e., on the one hand of a "pre-grinding wheel" (the blank), then, on the other hand, of pressing all the components of the grinding wheel. The process disclosed consists in a stage of assembly by a single pressing of the various layers containing felted fibrous sheet material covered with abrasive grains and an additional adhesive material.

In addition, as explained on U.S. Patent 2,284,738, which has been cited by Goepfert as a source of additional information on the fibrous material used by Goepfert, the abrasive material is made, as one can see it on figures 1 and 2 of that patent, of a fibrous network (1) on which are deposited abrasive grains (4) or a mixture of abrasive grains and fibers (5). That is, the fibrous network (1) constitutes essentially a mattress for the later reception of the abrasive grains. Therefore, the grinding wheel revealed in Goepfert does not constitute a

blank according to the invention since in all the figures and in all the alternatives, fibers (1, 5) are used and the under face of the grinding wheel never comprises abrasive grains. Instead, it is always the case that fibers are first placed in the molds before pouring the abrasive grains, even in the illustrated alternatives.

In Melton, a polishing wheel and a method of making the same is disclosed wherein no pre-compressing step of a blank containing only abrasive grains and a binder is disclosed. As explained by Melton, the blanks (2) are made by depositing or superimposing membranes⁵ to form carding assemblies and, between the carding assemblies, abrasives grains are disposed.⁶ Therefore, abrasives grains are not poured directly in a mould. Upper disclose subject matter similar to Melton.

Therefore, based at least on the above-summarized reasons, Applicants respectfully request that the anticipation of Claims 45 and 49 and the obviousness rejection of Claims 50, 51, 53, 54, 55, 61, and 66 based on Goepfert, Melton, or Upper be withdrawn.

Claim 45 was rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Robie. In addition, Claims 50 and 66 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Robie.

Applicants respectfully submit that the presently amended Claim 45 is not anticipated by Robie because each and every element as set forth in that claim is not found, either expressly or inherently described, in the cited reference. In addition, Applicants respectfully submit that Robie does not support a *prima facie* case of obviousness of the invention recited in the presently amended independent Claims 45 and 66. This is so because Robie does not teach or suggest all the claim limitations recited therein.

The outstanding Office Action acknowledges that Robie discloses “a process for making an abrasive wheel which comprises first forming an abrasive-included felted fibrous

⁵ See, for example, Melton, col. 2, line 43.

⁶ *Id.*, col. 2, line 47.

sheet.” As explained hereinabove and recited in Claims 45 and 66, the claimed blank is formed by compressing abrasive grains and a binder, thus the claimed blank does not contain a felted fibrous sheet.

Therefore, Applicants respectfully request that the anticipation of Claim 45 and the obviousness rejection of Claims 45 and 66 based on Robie be withdrawn.

Claim 45 was rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over either Field, Osenberg, or Oide. In addition, Claims 50 and 66 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Field, Osenberg, or Oide.

Applicants respectfully submit that the presently amended Claim 45 is not anticipated by Field, Osenberg, or Oide because each and every element as set forth in that claim is not found, either expressly or inherently described, in the cited references. In addition, Applicants respectfully submit that Field, Osenberg, or Oide does not support a *prima facie* case of obviousness of the invention recited in the presently amended independent Claims 45 and 66. This is so because Field, Osenberg, or Oide does not teach or suggest all the claim limitations recited therein.

Field relates to an abrading implement and mandrel for use with a disk of fabric plies.⁷ No disk structure is disclosed except that “the disk assembly 12 includes multiple plies 25 of abrasive coated fabric or paper, each having a center hole 26, and a tubular metal grommet 30 with a flanged head 33.”⁸ Similar, Osenberg and Oide have been cited for disclosing the superposition of disks to form a grinding wheel.

Applicants respectfully submit that neither Field, Osenberg, nor Oide disclose a blank, as recited in Claims 45 and 66, formed by compressing abrasive grains and a binder, which is

⁷ See, for example, Field, col. 1, lines 37 and 38.

⁸ *Id.*, col. 2, lines 18-27.

then again compressed with a layer of constituent, such a protective sheet or a reinforced sheet, or a combination of both, to form a grinding wheel.

As such, Applicants respectfully submit that neither Field, Osenberg, nor Oide anticipate the subject matter of Claim 45 or make obvious the subject matter of Claims 50 and 66. Therefore, Applicants respectfully request that the anticipation of Claim 45 and the obviousness rejection of Claims 50 and 66 based on Field, Osenberg, nor Oide be withdrawn.

Claims 46-48 were rejected under 35 U.S.C. § 103(a) as being unpatentable over either Field or Osenberg both in view of Padberg.

Applicants respectfully submit that either Field or Osenberg and Padberg, individually or in any combination, do not support a *prima facie* case of obviousness of the invention recited in the presently amended independent Claim 45. This is so because the proposed combination does not teach or suggest all the claim limitations recited therein.

Claim 45 recites, among other features, a blank made by compressing abrasive grains and a binder. As already discussed, Field, Osenberg, and Padberg do not teach or disclose such a feature. As such, Applicants respectfully request that the obviousness rejection of Claim 45 based on Field, Osenberg, and Padberg be withdrawn.

Claims 46-49 and 56-61 were rejected under 35 U.S.C. § 103(a) as being obvious over Oide.

Applicants respectfully submit that Oide does not support a *prima facie* case of obviousness of the invention recited in the presently amended independent Claims 45 and 56. This is so because the proposed combination does not teach or suggest all the claim limitations recited therein.

Claims 45 and 56 recite, among other features, a blank made by compressing abrasive grains and a binder. As already discussed, Oide does not teach or disclose such a feature. As

such, Applicants respectfully request that the obviousness rejection of Claims 46-49 and 56-61 based on Oide be withdrawn.

Claims 45, 46 and 49 were rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Hurst. In addition, Claims 50 and 66 were rejected under 35 U.S.C. § 103(a) as being obvious over Hurst.

Applicants respectfully submit that the presently amended Claim 45 is not anticipated by Hurst because each and every element as set forth in that claim is not found, either expressly or inherently described, in the cited reference. In addition, Applicants respectfully submit that Hurst does not support a *prima facie* case of obviousness of the invention recited in the presently amended independent Claims 45 and 66. This is so because Hurst does not teach or suggest all the claim limitations recited therein.

Hurst discloses grinding wheels made with a felted cotton fiber base sheet held together by casein adhesive to which a series of glass fiber strands or cords of reinforcing material are laid down on the tacky side of the fibrous sheet material. The resin coating is then dried to a non-tacky condition to hold the glass fiber cords in position, after which a mixture of 24 grit size fused aluminum oxide abrasive grain an organic bond is spread over the surface of the reinforced fibrous sheet material.⁹

Applicants respectfully submit that Hurst does not disclose a blank made of abrasive grains and a binder. Similar to the other references already discussed, Hurst uses a felted cotton fiber base sheet to which glass fiber strands are attached for reinforcement. Subsequently, abrasive material is then attached to the fiber base sheet containing the fiber strands.

⁹ See, for example, Hurst, col. 3, lines 56-75.

Based at least on the above-summarized reasons, Applicants respectfully request that the anticipation and obviousness rejections of Claims 45, 46 and 49 and the obviousness rejection of Claims 50 and 66 based Hurst be withdrawn.

Claims 47-48 and 56-61 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hurst in view of Padberg.

Applicants respectfully submit that Hurst and Padberg, individually or in any combination, do not support a *prima facie* case of obviousness of the invention recited in the presently amended independent Claims 45 and 56. This is so because Hurst and Padberg do not teach or suggest all the claim limitations recited therein.

Both Hurst and Padberg have been summarized and discussed hereinabove in conjunction with other rejections. Both references do not teach or disclose the blank element as recited in independent Claims 45 and 56. Based at least on the reasons previously mentioned, Applicants respectfully request that the obviousness rejection of Claims 47-48 and 56-61 based on Hurst and Padberg be withdrawn.

Claims 45-65 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over all the claims of copending Application No. 10/169,740 in view of Padberg.

Applicants have herewith filed a terminal disclaimer in compliance with 37 C.F.R. §1.321(c) and respectfully request that the provisional obviousness-type double patenting rejection of Claims 45-65 over all the claims of copending Application No. 10/169,740 in view of Padberg be withdrawn

Finally, Applicants have submitted herein new Claims 71-73, reciting, among other features, blanks made out of abrasive grains coated with a binder. The subject matter of Claims 71-71 is supported by the Applicants' specification at least on page 3, lines 18-19.

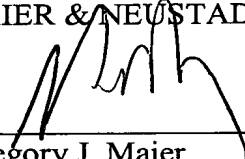
Application No. 10/009,351
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Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 44-73 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representatives at the below listed telephone number.

Respectfully submitted,

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